

# Industry Advisory Councils of Undergraduate Construction Programs: A Comparative Study of Common Practices

**Toni Hynds and James C. Smith**  
Texas A&M University  
College Station, Texas

This paper presents the findings from a survey of 13 American Council of Construction Education (ACCE) accredited university programs of higher education. The survey focused on the common practices used by these programs in responding to the ACCE requirements that programs have a strong relationship with the construction industry. This relationship, typically, centers on an industry advisory council (IAC). The survey results revealed the range of practices being followed by ACCE-accredited programs. The survey evaluated the IAC structure, by-laws, leadership, and other activities. IAC roles in student placement, student enrichment, curriculum review, strategic planning, fundraising, and internships were also documented.

**Key Words:** Industry Advisory Council, Undergraduate Construction Programs, Industry/University Collaboration.

## Introduction

Relationships with industry are crucial to programs of post-secondary education in construction. Accrediting bodies for post-secondary education construction programs, the American Board of Engineering Technology (ABET) and the American Council on Construction Education (ACCE), require a formal linkage between industry and programs preparing students to enter the construction or construction-related industries. This linkage is most often in the form of an industry advisory council (IAC).

The purpose of this study was twofold: (a) to determine how various ACCE-accredited use IACs in relationship to structure (use of by-laws), leadership of the council, council membership, meetings, and activities (placement, internships/co-op, and curriculum); and, (b) to summarize the thoughts of construction program leaders regarding the current ACCE IAC standard (Appendix A).

## Background

Collaboration between universities and industry has been receiving increased attention because of the potential benefits for all parties (Nasr and AbdulNour, 1997). Powers, et. al., (1988) conducted a survey to evaluate why universities and companies collaborate. The authors state that universities collaborate for the opportunity to provide student exposure to the real world of work through research and student and/or faculty internships, to have access to possible funding sources, to work on tangible industry-related research, and to have industry practitioners provide

input on academic curricula. Companies collaborate in order to obtain access to program graduates, obtain a window on science and technology, and gain access to university facilities.

Tener (1996) states an important way of cementing industry/university collaborative efforts is for a construction program to have an industry advisory committee that provides input on significant issues that affect the construction program and the quality of the undergraduate education.

Advisory boards/committees/councils bridge the gap between the academic world and the workplace (Dorazio, 1996). Benefits are threefold: to students, to program, and to advisory board members. Benefits for the students are a curriculum that has input from industry professionals, field and job placement opportunities, internships and work practicums, and field trips. Benefits for the programs are in the form of free advice on programs and curricula, donations of material, equipment, human resources (guest lecturers/speakers), and consulting and research opportunities for faculty. The board members benefit from being able to feel useful by making valuable contributions and suggestions. The members have the knowledge that they are impacting future professionals in the industry. It allows for professionals to “give back” for the betterment of the construction programs (in some situations, their alma mater).

Badger (1999) further expands on the benefits of an industry advisory council by outlining the role of the IAC for the undergraduate construction program where he serves as director. This paper identified key areas of involvement of Badger’s IAC specific to: (a) strategic planning; (b) increasing enrollment, marketing of the program; (c) increasing research (benefit to the faculty and the industry); (d) expanding physical and monetary resources; (e) being an advocate to the state and university administration; (f) developing curriculum to meet the changing needs of the construction industry; (g) developing an internship program; and, (h) development of continuing education for construction professionals. Badger states, “the IAC has given advice and support, knowledge of needs of the modern, highly technical industry, and funds to ensure that the program has the resources it needs (p. 128).”

The ACCE feels that there are benefits for having construction industry professionals serving on advisory councils for undergraduate programs, and has developed, via their Standards Committee, an IAC requirement for ACCE accreditation (Appendix A). There has been no research on undergraduate construction program IACs to determine common practices of various undergraduate construction programs in implementing the IAC standard for accreditation or re-accreditation.

## **Methodology**

This was a qualitative research project utilizing a structured interview and a non-random sample. A call for participation was sent to all Associated Schools of Construction (ASC) members who had a four-year ACCE-accredited program. (Of the 48 ACCE accredited four-year construction programs, only two had joint ABET accreditation. Therefore, this study focused only on four-year ACCE-accredited programs.) Construction program leaders who responded to the call for participation were included in this research. There were 13 programs participating in the study

(Appendix B) with a representative mix of program sizes, geographic locations, and program age.



*Figure 1. Locations of Participating Construction Programs*

A telephone conference was held with the researchers and each program leader using a structured questionnaire (electronically sent to the participants prior to the telephone interview). The questionnaire was comprised of six sections: IAC structure, leadership, membership, meetings, activities, and ACCE IAC standard discussion.

All programs represented were four-year, ACCE-accredited undergraduate construction programs. Because all programs were ACCE-accredited, size of the program was not viewed as an important variable.

## **Findings**

The findings are presented from the information gathered from the questionnaire in the following categories: structure, membership, meetings, fundraising, placement, internships/co-ops, curriculum, and the ACCE IAC standard. The responses were wide and varied with very little consistency between the 13 programs.

### *Structure*

Respondents were asked if the activities of their IACs were governed by written by-laws. While eight of the 13 respondents indicated that they did have written by-laws, several admitted that the written by-laws were outdated and were not followed in current practice. There was a majority consensus that written by-laws were either not needed, or were necessary only to satisfy a university or accreditation requirement. Some respondents said that industry members themselves were against written by-laws. Those few programs with current, written by-laws,

that were serving to control IAC activity, were strong in their advocacy of the need for written by-laws that were updated regularly.

One survey question dealt with the leadership practices for IACs. Responses ranged from IACs without a Chair to a formal, structured nomination and election process to pick the Chair. In many situations the program leader acted as the defacto Chair. A few programs have a Chair with fixed terms, but in most cases Chair terms were flexible and some Chairs had served in that capacity for many years. In a few of the programs Chairs were selected by the Department Head and faculty. Chairs being elected by the IAC membership were the most predominant response. Overall, this survey question did not reveal any consensus regarding the selection and term of IAC Chairs.

Most respondents indicated that their IAC functioned as a monolith without any internal structure. However, several IACs, particularly the larger ones, functioned with a set of committees or subcommittees. One IAC had 12 committees to address a broad range of program issues. Other common internal groups included were curriculum, long range planning, alumni (actually a subgroup of the IAC where membership included those other than alumni), budget, and industry relations.

### *Membership*

The IAC membership numbers ranged from a low of six to a high of 80. The average membership number was about 15 and most respondents had between 12 and 18 members on their IAC. Typically respondents indicated that the IAC membership was chosen to represent the industry sectors served by the program. The selection of new members was most often done either by the Department Head or based upon the recommendation of the other IAC members.

Membership terms varied widely. Five programs reported term limits of two to five years with renewals possible; others reported no term limits. One respondent stated: "You should never fire a volunteer" and that premise seemed to carryover to most IACs. Most respondents indicated that terms could be extended indefinitely and as long as a member was active and participating his/her tenure was assured. A common tenet was that productive members should be retained as long as they desired to participate. In two programs, continued membership was tied to a requirement to pay annual dues.

### *Meetings*

Almost all schools in the study held IAC meetings on campus and met twice a year. Reported attendance was typically about 75% of total membership. Meeting length ranged from 1½ hours to 8 hours with an average of about three hours. In a few cases, meetings were timed to complement another campus event (a football game or the Department Awards Banquet), but most often the campus meetings were stand-alone events.

Meeting agendas were often prepared by the Department Head and almost always included time for the Department Head to give the IAC a report on the "State of the Program." Most agendas incorporated a lunch or dinner. Faculty and student participation in the agenda was common for

about half of the respondents, with the other half indicating that participation by faculty and students was not usually part of the agenda. A common agenda item from many respondents involved curriculum oversight by the IAC with the program seeking input on curriculum content. Other unique agenda items that were felt to be constructive included: (a) a closed one-hour session for only IAC members and student leaders to discuss program issues; (b) student presentations; (c) IAC exit interviews with graduating seniors; and, (d) a “value-added” presentation on a contemporary issue from an industry “expert”, e.g., use of the internet in project management. A common theme from respondents was the difficulty in developing an agenda that would keep the IAC members' interest and to insure active, continued involvement by the members.

### *Fundraising*

The role of IACs in fundraising varied widely in this survey. Two programs had an IAC dues structure that generated substantial income. Many programs had a limited fundraising dimension that is largely ad hoc, designed to cover IAC expenses only, e.g., the cost of meeting lunch/dinner, or to address modest one-time needs, e.g., a new computer. Some programs had chosen not to involve the IAC in any form of fund raising, reacting to IAC member comments that they were giving time and did not feel it appropriate to have the program constantly soliciting money.

The two programs with IAC dues structures had common features that enabled the assessment of dues to be successful. Both programs have written by-laws, which clearly explain the dues structure, the purpose of the dues, and the use of the dues income (e.g., scholarships, student enrichment, faculty development, research seed funding, etc.). The IAC members seem willing to pay dues if there is a clear understanding of the use that will be made of dues income, and if that use was tied to improving the quality of the program.

### *Placement*

All of the programs use university/college/school/department placement services without formal assistance from the IACs. However, three of the respondents cited one of the reasons individuals want to serve on the IAC is the networking opportunities between the department head, faculty, and students for hiring of graduates. One program has a bonus incentive for joining the IAC by allowing IAC companies/members early access to interviewing the graduating seniors during the career fairs.

### *Internships/Co-Ops*

Six of the programs had structured internship/co-op programs. Five of the six programs gave academic credit for the internship. One program had an internship requirement, but offered no credit. All six of the respondents stated the IAC members were very supportive and provided internship/co-op opportunities. One respondent said that this support carried over to faculty internships, as well.

One program, not requiring an internship as part of the curriculum, has an IAC that wants internships to be a requirement, but the members will not guarantee internship positions for the students. Seven of the 13 programs do not have structured internship/co-op requirements.

### *Curriculum*

The most commonly cited involvement in the programs was the review of and input for the curriculum by the IACs. Twelve of the 13 indicated curriculum review as an important part of the IAC activities. Input ranged from suggestions of new courses to modification of current courses. All respondents complimented their IAC on understanding its role as one of curriculum advisor/reviewer. The respondents felt that one of the best links to keeping the curriculum current was to formally solicit feedback from the IAC members. Several of the programs have made curriculum changes because of suggestions made by their IAC. Three of the 12 programs had an IAC curriculum subcommittee to formally review the curriculum with faculty representatives.

### *ACCE IAC Standard*

The question of whether the current ACCE IAC standard needs to be changed generated dynamic discussion and no consensus. Six respondents said yes, four said no, two said the standard should be dropped, and one respondent was not sure.

The six respondents who felt the IAC standard needs to be changed recommended that more specific outcomes, in the form of metrics, be specified in the standard. These respondents cited the IAC standard as being “too loose and wide-open” and should include parameters that would allow for consistency when a program is being accredited or re-accredited. Examples of recommended metrics were: (a) to specify the minimum number of IAC meetings each year (two per year was recommended as the minimum); (b) to require written by-laws that outline roles and responsibilities of the members; (c) to outline how the IAC Chair is chosen; (d) to specify length of term for members; and, (e) to demonstrate other ways to show that the IAC is active in the program.

The five respondents who believed the standard should remain the same voiced concern about a standard that was so tight that individual programs were limited or given a heavy burden to implement in order to maintain or acquire accreditation. Flexibility was a keyword most often mentioned, and the respondents stated that the current standard allowed for this.

Two individuals recommended that the IAC standard be removed from the overall ACCE standards. They felt no formalized section in the standard was necessary and created “just another item” that had to be done.

### *Pros and Cons*

Respondents were asked to identify the three most important advantages of IACs and the three most frustrating aspects of IACs. The following responses were given by the majority of respondents in each category.

Advantages:

- Curriculum support.
- Networking with industry.
- Influence with University.
- Strategic thinking and planning.

Frustrations:

- Finding IAC members who are activists.
- Keeping IAC members engaged.
- Lack of IAC member knowledge of academia.
- The “burden” of planning and holding IAC meetings.

### *IAC on the Web*

Only two of the respondents indicated that they included any information on their IAC on their departmental web site. Consensus seemed to be that inclusion of IAC information on their web site was a “good idea,” but they simply had not done so as a priority matter.

### **Conclusions**

This study has provided significant insight into the use of IACs in ACCE-accredited programs. While all respondents had an IAC as required by ACCE standards, most considered the IAC to be a burden without commensurate benefit. Many programs appear to be “going through the motions” to satisfy an accreditation or university requirement with no effort to take full advantage of the value that IACs can bring. Those few programs that have aggressively sought IAC support of their programs have been very successful in leveraging the resources of industry to add significant value to the program. There seemed to be a reluctance to approach the construction industry for funding; this reluctance is unfortunate since all programs are producing a vital product for the industry—the next generation of construction industry leaders. The industry should be willing and eager to help with funding resources for these programs and programs should be aggressive and open in their efforts to acquire industry funding with the IACs as one vehicle.

The ACCE standard for IACs and other industry relations (Appendix A) is so broad that it can be satisfied with almost any response as evidenced by the wide disparity of responses to this survey. The standard is so imprecise that it should be eliminated completely or rewritten to include some specific metrics that enable measurement. There are good examples of IACs that have added tremendous value to programs, and metrics (outcomes) could be developed that would measure the benefits produced by IACs. For example, some of these metrics might be—funding provided (via dues, scholarships, fellowships, professorships, chairs, etc.), guest speakers provided, field trips sponsored, internships/co-op slots provided, etc.

There is a more fundamental issue evidenced by this survey. Most respondents implied that there was less than a sincere partnership between programs of construction higher education and the construction industry. There is strong industry demand for entry-level managers produced by programs of construction higher education. Recent research findings indicate that less than one-third of industry demand is being supplied by programs of construction higher education (Bilbo, et. al., 2000). Based upon this trend, the construction industry needs to be mobilized to seek “ownership” of programs of construction higher education and be prepared to devote significant resources to support and expand these programs. Programs of construction higher education must be receptive and responsive to aggressively seek out and take advantage of the resources available in industry. Leaders of both groups (ACCE and ASC for programs of construction higher education; and professional groups, such as; American Institute of Constructors [AIC], Construction Business Roundtable, Associated General Contractors [AGC], Associated Builders and Contractors [ABC], etc. for the construction industry) should meet to collectively plan an order of magnitude increase in industry support for programs of construction higher education.

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## **Appendix A**

### **ACCE Advisory Council Standard Relations with Industry Support**

#### **Support from Industry**

Construction is a practice-oriented profession. Therefore, it is imperative that an industrial advisory committee, consisting of representatives from the construction industry, be actively involved in an advisory role for the construction program. The committee should meet on a regular basis for the purpose of advising and assisting the development and enhancement of the program. Although the composition of the committee should change periodically, there should be provisions to ensure reasonable continuity. The composition of the committee should be representative of the potential employers of the graduates of the construction program.

#### **Support for Industry**

There should be an active program of continuing education and, in the case of baccalaureate programs, research directly applicable to and in support of the construction industry. The construction program should maintain continuous liaison with the various associations to determine needs of the construction community for the purpose of establishing educational and professional development activities for the construction industry.

#### **Student-Industry Relations**

There should be well-defined communications and participation between faculty, students, and the construction industry. There should be well-documented evidence of industry involvement such as field trips and speakers for student clubs. Students should attend membership meetings of the various associations and participate in summer work programs and other activities in the construction industry.

## Appendix B

### Construction Programs at Universities Participating in the IAC Survey

Del E. Webb School of Construction  
Arizona State University  
Tempe, Arizona

Department of Building Science  
Auburn University  
Auburn, Alabama

Department of Construction Management  
California Polytechnic State University  
San Luis Obispo, California

Department of Construction Science and Management  
Clemson University  
Clemson, South Carolina

Construction and Facilities Department  
Ferris State University  
Big Rapids, Michigan

Construction Management  
Milwaukee School of Engineering  
Milwaukee, Wisconsin

Department of Building Construction Management  
Purdue University  
West Lafayette, Indiana

Department of Construction Science  
Texas A & M University  
College Station, Texas

Department of Construction Management  
University of Cincinnati  
Cincinnati, Ohio

M.E. Rinker Sr. School of Building Construction  
University of Florida  
Gainesville, Florida

Department of Construction Management  
University of Nebraska – Lincoln  
Lincoln, Nebraska

Construction Engineering and Management  
University of Nevada – Las Vegas  
Las Vegas, Nevada

Division of Construction Science  
University of Oklahoma  
Norman, Oklahoma.